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3
THE
FOUR FIRST
RULES

OF
ARITHMETIC,

WITH A USEFUL
COLLECTION of TABLES,

OF
WEIGHTS and MEASURE.

L O N D O N,

PRINTED IN THE YEAR
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H

FOR THE

UNITED

STATES

OF AMERICA

WEIGHT



OF ARITHMETIC.

ARITHMETIC, in all its Parts, is performed by the various ordering and disposing of Ten Arabic Characters, or numerical Figures; which, by some, are called Digits.

1, 2, 3, 4, 5,
One, Two, Three, Four, Five,

6, 7, 8, 9, 0,
Six, Seven, Eight, Nine, Cypher,

The Rules, by which numerical Operations are performed, are various and many; several of them being formed and raised as Occasion requires when applied to Practice, yet they are all comprehended under Five principal or fundamental Rules, viz. Numeration or Notation, Addition, Subtraction, Multiplication, and Division: And First of

N U M E R A T I O N.

Numeration teaches us the Manner of reading or expressing the Value of any Number when writ down; and, consequently, to write down any proposed Number according to its true Value when it is named: For the better understanding of which observe the following Tables.

Units	9
Tens	98
Hundreds	987
Thousands	9,876
Tens of Thousands	98,765
Hundreds of Thousands	987,654
Millions	9,876,543
Tens of Millions	98,765,432
Hundreds of Millions	987,654,321
Thousands of Millions	9,987,654,321

A

Units

Units	3
Tens	41
Hundreds	302
Thousands	8,040
Tens of Thousands	23,400
Hundreds of Thousands	246,104
Millions	3,004,007
Tens of Millions	201,004,704
Hundreds of Millions	320,000,045

Write down in Words	4 2
Write down in Words	8 7
Write down in Words	1 4 6
Write down in Words	2 3 2
Write down in Words	4 7 4 6
Write down in Words	1 1 0 4
Write down in Words	5 1 7 0 2
Write down in Words	4 4 0 5 7
Write down in Words	2 7 1 4 1 4
Write down in Words	4 4 2 7 2 8
Write down in Words	4 6 0 7 8 4 7
Write down in Words	7 8 6 4 3 1 5
Write down in Words	1 8 7 8 1 4 0 2
Write down in Words	4 0 4 3 2 6 4 7
Write down in Words	4 7 0 6 2 3 7 3 4
Write down in Words	3 0 0 4 7 4 4 0 7
Write down in Words	4 7 4 8 4 1 0 4 4
Write down in Words	1 4 0 7 0 9 0 1 4

Express in Figures, Twenty Seven.

Express in Figures, Fifty-Nine.

Express in Figures, Two Hundred and Seventy-four.

Express in Figures, Eight Hundred and Seventy-three. Express

Express in Figures, Four Thousand, Six Hundred and Twenty-Five.

Express in Figures, Four Thousand and Nine.

Express in Figures, Fifty Thousand and Fifty-nine.

Express in Figures, Seventy Thousand, eight Hundred and Forty-three.

Express in Figures, Six Hundred and fifty-nine Thousand, one Hundred and Twenty-one.

Express in Figures, One hundred Thousand, six Hundred and Forty-three.

Express in Figures, seven Million, three Hundred and twenty-four Thousand, eight Hundred and Twenty-one.

Express in Figures, Nine Million, four Hundred and forty-seven thousand, eight Hundred and Seventy-one.

Express in Figures, Eleven Million, one Hundred and forty-one Thousand, seven Hundred and Seventeen.

Express in Figures, Ninety Million, six hundred Thousand, four Hundred and Ten.

Express in Figures, One hundred and twenty-one Million, one Hundred and ten Thousand, seven Hundred and Eleven.

Express in Figures, Four hundred and thirty-six Million, two hundred and forty-three Thousand, one Hundred and Twenty-nine.

A D D I T I O N

Is that by which several Numbers are collected and put together, so that their Sum or total Amount may be known.

Two Things being carefully attended to, Addition will be easily performed. The First, is the exact Placing of the Numbers in such a Manner, as that Figures of the same Value shall be placed underneath one another; that is, place Units under Units, Tens under Tens, Hundreds under Hundreds, and so on. The second Thing to be attended to, is the adding together each Row of Figures that stand over one another of the same Value, and is thus performed.

R U L E.

Always begin at the Place of Units, and add together all the Figures that stand in that Place; and if their Sum be under Ten, set it down below the Line underneath its own Place; but if the Sum be more than Ten, you must set down only the Overplus or odd Figure above the Ten or Tens; and so many Tens as the Sum of those Units amount to, you must carry to the Place of Tens, adding them, and all the Figures that stand in the Place of Tens together, in the same Manner as those of Units were added together: Then proceed in the same Manner to the Place of Hundreds, and so on to each Place until all is done.

E X A M P L E S.

$$\begin{array}{r} 45231 \\ 72414 \\ 13721 \\ \hline \end{array}$$

$$\begin{array}{r} 214351 \\ 431623 \\ 198312 \\ \hline \end{array}$$

$$\begin{array}{r} 5241624 \\ 4836471 \\ 1212342 \\ \hline \end{array}$$

[7]

3	7	5	4	8	9
2	1	4	6	2	2
1	3	1	2	1	3
3	2	1	3	4	1
2	3	3	8	6	3
1	4	8	3	3	4
2	3	4	2	4	8
1	2	1	2	1	2
—	—	—	—	—	—
—	—	—	—	—	—
47	32	54	57	71	47
32	11	23	12	34	19
89	53	64	37	83	83
41	47	87	54	19	27
32	19	32	32	74	34
51	71	47	81	83	14
—	—	—	—	—	—
—	—	—	—	—	—
£	£	£	£	£	£
431	274	741	321	461	
237	191	4	11	193	
194	143	300	874	328	
871	874	416	619	471	
94	674	912	131	874	
187	871	874	741	104	
—	—	—	—	—	—
—	—	—	—	—	—
18207	5270	5274	3274		
1397	191	1934	1946		
5164	3274	7141	8752		
2810	8146	1648	5716		
329	913	3471	7142		
47	7041	6191	4168		
1	8027	1916	7134		
1234	1432	1341	1487		
—	—	—	—	—	—
—	—	—	—	—	—

Add 27, 134, 49, 5640, 8714, 32, 59, 121, 347 together, and shew the Total.

Addition

Addition of Money.

Observe 4 Farthings, make 1 Penny
 12 Pence, 1 Shilling.
 20 Shillings, 1 Pound.
 10 Shillings and 6d. Half a Guinea.
 21 Shillings, One Guinea.

$\frac{1}{4}$ stands for one Farthing.

$\frac{1}{2}$ stands for two Farthings, or Halfpenny.

$\frac{3}{4}$ stands for three Farthings.

£ stands for Pounds Sterling.

s. stands for Shillings.

d. for Pence.

4 Farthings 1 Penny.	27 Farthings	$6\frac{3}{4}$
5 — $1\frac{1}{4}$	28 —	7
6 — $1\frac{1}{2}$	29 —	$7\frac{1}{4}$
7 — $1\frac{3}{4}$	30 —	$7\frac{1}{2}$
8 — 2	31 —	$7\frac{3}{4}$
9 — $2\frac{1}{4}$	32 —	8
10 — $2\frac{1}{2}$	33 —	$8\frac{1}{4}$
11 — $2\frac{3}{4}$	34 —	$8\frac{1}{2}$
12 — 3	35 —	$8\frac{3}{4}$
13 — $3\frac{1}{4}$	36 —	9
14 — $3\frac{1}{2}$	37 —	$9\frac{1}{4}$
15 — $3\frac{3}{4}$	38 —	$9\frac{1}{2}$
16 — 4	39 —	$9\frac{3}{4}$
17 — $4\frac{1}{4}$	40 —	10
18 — $4\frac{1}{2}$	41 —	$10\frac{1}{4}$
19 — $4\frac{3}{4}$	42 —	$10\frac{1}{2}$
20 — 5	43 —	$10\frac{3}{4}$
21 — $5\frac{1}{4}$	44 —	11
22 — $5\frac{1}{2}$	45 —	$11\frac{1}{4}$
23 — $5\frac{3}{4}$	46 —	$11\frac{1}{2}$
24 — 6	47 —	$11\frac{3}{4}$
25 — $6\frac{1}{4}$	48 —	12
26 — $6\frac{1}{2}$		

	s.	d.		£	s.
12 Pence	1		20 Shillings,	1	
20 —	1	8	30 —	1	10
24 —	2		40 —	2	
30 —	2	6	50 —	2	10
36 —	3		60 —	3	
40 —	3	4	70 —	3	10
48 —	4		80 —	4	
50 —	4	2	90 —	4	10
60 —	5		100 —	5	
70 —	5	10	110 —	5	10
72 —	6		120 —	6	
80 —	6	8	130 —	6	10
84 —	7		140 —	7	
90 —	7	6	150 —	7	10
96 —	8		160 —	8	
100 —	8	4	170 —	8	10
108 —	9		180 —	9	
110 —	9	2	190 —	9	10
120 —	10		200 —	10	
130 —	10	10	300 —	15	
132 —	11		400 —	20	
140 —	11	8	500 —	25	
144 —	12		600 —	30	

Observe, that due Care must be taken that all Numbers that are of the same Denomination, must be placed exactly underneath each other; that is, Pounds under Pounds, Shillings under Shillings, Pence under Pence, Farthings under Farthings, then in adding together, observe the following Rule.

Always begin with those Figures of the lowest Name, Farthings (if any) add them all together, and then consider how many Pence, being *the next superior Denomination*, are contained in the Number you have added together, for so many you must carry to the next Row; set down what was over exactly underneath the Row you have added, and then add up the next Row, which will be Pence, when the first was Farthings, remembering what you had to carry; in like Manner consider how many Shillings those Pence will make, for so many Shillings you are to carry to the next Row, which is Shillings; set down exactly underneath

underneath the Pence what was over, and then add the Shillings, which again, when you have added, you must consider how many Pounds it makes, which carry to the Row of Pounds; set down under the Shillings what was over, and add the Pounds in the same Manner as you did in single Addition, carrying One for every Ten.

E X A M P L E S.

Add 10*l.* 12*s.* 4*d.* $\frac{1}{4}$ 14*l.* 17*s.* 8*d.* $\frac{1}{2}$ and 14*l.* 11*s.* 9*d.* $\frac{3}{4}$ together.

Add 11*l.* 17*s.* 6*d.* $\frac{3}{4}$ 13*l.* 18*s.* 4*d.* $\frac{3}{4}$ and 16*l.* 12*s.* 6*d.* $\frac{1}{2}$ together.

$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$
$\frac{3}{4}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{4}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
—	—	—	—	—	—
—	—	—	—	—	—

<i>d.</i> $3\frac{1}{4}$	<i>d.</i> $4\frac{3}{4}$	<i>d.</i> $6\frac{3}{4}$	<i>d.</i> $8\frac{1}{4}$	<i>d.</i> $8\frac{1}{4}$
$2\frac{1}{4}$	$8\frac{1}{4}$	$1\frac{1}{4}$	$10\frac{1}{2}$	$4\frac{1}{2}$
$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{4}$	$4\frac{3}{4}$	$3\frac{3}{4}$
$4\frac{1}{2}$	$10\frac{1}{2}$	$3\frac{3}{4}$	$5\frac{1}{4}$	$4\frac{1}{4}$
$3\frac{1}{2}$	$9\frac{1}{4}$	$1\frac{1}{4}$	$8\frac{1}{2}$	$7\frac{1}{2}$
$4\frac{1}{2}$	$6\frac{1}{4}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$3\frac{1}{4}$
$8\frac{3}{4}$	$1\frac{3}{4}$	$11\frac{1}{2}$	$4\frac{1}{4}$	$4\frac{1}{2}$
—	—	$4\frac{3}{4}$	$1\frac{3}{4}$	$3\frac{1}{4}$
—	—	—	—	—
—	—	—	—	—

s.	d.	s.	d.	s.	d.	s.	d.
14	8 $\frac{3}{4}$	17	4 $\frac{1}{4}$	14	6 $\frac{1}{4}$	16	10
19	2 $\frac{1}{4}$	19	2 $\frac{3}{4}$	19	2 $\frac{3}{4}$	00	4 $\frac{1}{4}$
14	8 $\frac{1}{2}$	12	4 $\frac{1}{4}$	18	0	18	0 $\frac{3}{4}$
16	4	14	8	13	4	00	0 $\frac{3}{4}$
18	7	18	3 $\frac{1}{2}$	14	0 $\frac{1}{4}$	17	8
12	10 $\frac{1}{4}$	12	4	18	0 $\frac{1}{2}$	18	4
19	10	17	6 $\frac{1}{4}$	17	4 $\frac{3}{4}$	00	8 $\frac{1}{4}$

£	s.	d.	£	s.	d.	£	s.	d.
114	12	4 $\frac{3}{4}$	918	14	8 $\frac{1}{4}$	641	14	8 $\frac{3}{4}$
274	16	2 $\frac{1}{4}$	117	18	2	192	17	4 $\frac{1}{4}$
871	12	8 $\frac{3}{4}$	217	16	8 $\frac{1}{4}$	432	14	8 $\frac{3}{4}$
194	17	5 $\frac{1}{4}$	874	14	4 $\frac{3}{4}$	419	12	1 $\frac{1}{4}$
874	14	6 $\frac{1}{4}$	714	18	7 $\frac{1}{4}$	174	14	6 $\frac{3}{4}$
614	18	8 $\frac{1}{2}$	827	16	6 $\frac{1}{4}$	174	18	4 $\frac{1}{4}$

£	s.	d.	£	s.	d.	£	s.	d.
417	14	4 $\frac{3}{4}$	141	00	0	746	14	4 $\frac{1}{4}$
812	16	8 $\frac{1}{4}$	217	10	0	194	12	6 $\frac{1}{4}$
319	17	0 $\frac{1}{4}$	171	19	4	32	19	8 $\frac{3}{4}$
874	19	4 $\frac{3}{4}$	271	00	0 $\frac{3}{4}$	4	1	8 $\frac{1}{4}$
714	14	10 $\frac{1}{4}$	194	00	10 $\frac{3}{2}$		12	4 $\frac{1}{2}$
834	19	10 $\frac{1}{2}$	132	19	11 $\frac{1}{4}$	14	19	6 $\frac{3}{4}$

How much will 121l. 14s. 4d. $\frac{1}{4}$; 32l. 17s. 4d. $\frac{1}{4}$; 328l. 19s. 4d. $\frac{3}{4}$; 841l. 17s. 4d. $\frac{3}{4}$; 131l. 16s. 8d. $\frac{3}{4}$; 147l. 8s. 8d. $\frac{3}{4}$; and 20l. 10s. 4d. $\frac{3}{4}$ added together, amount to ?

Add 19l.---41l. 12s.---132l. 17s. 8d. $\frac{1}{4}$ ---20l. os. 4d.---37l. 14s. 8d. $\frac{3}{4}$ ---147l. 18s. 4d. $\frac{3}{4}$ ---and 161l. 14s. 8d. $\frac{1}{4}$ together.

B

Find

Benjamin Trusty was sent to pay the Baker's Bill, of 5*l.* 11*s.* 4*d.* $\frac{3}{4}$; the Butcher's Bill of 7*l.* 10*s.* the Cheesemonger's two Guineas and a Crown; the Grocer's of 3*l.* 13*s.* 6*d.* $\frac{1}{4}$; the Tallow Chandler's, 1*l.* 15*s.* 4*d.* $\frac{3}{4}$; the Brewer 27 Shillings and Nine-pence; the Vintner's 4*l.* 17*s.* 4*d.* $\frac{3}{4}$, pray how much Money was *Benjamin Trusty* entrusted with, that he might discharge the above Bills?

James Sprightley was sent out to receive Cash; he received at the Bank, for Dividends, 130*l.* 14*s.* 4*d.* $\frac{1}{4}$; at one Merchant's, 27*l.* 16*s.* 4*d.* $\frac{1}{4}$; at a Banker's, 132*l.* 16*s.* 4*d.* $\frac{1}{4}$; at a Grocer's, 19*l.* 17*s.* and another small Bill of Thirty-nine Shillings and Fourpence; pray what Sum did he bring home?

Bills of Book Debts

Are such as give an Account of Goods bought at different Times, and all Particulars, which have been entered into the Seller's Ledger, to which the Year and Day of the Months when each were bought is prefixed. Examples of which are as follow:

A Baker's Bill.

Mr. THOMAS STANTON,

Dr.

To JAMES SIMPSON,

1787.			£	s.	d.
Jan.	9	To a Quartern Loaf	0	0	6 $\frac{1}{4}$
	10	To a Half-peck Loaf	0	1	2
	7	To Baking four Pies	0	0	4
	12	To a Quartern Loaf	0	0	6
	13	To Half a Peck of Flour	0	1	3
		To Pollard and Bran	0	0	2 $\frac{1}{4}$
	16	To two Quarts of Oatmeal	0	0	5 $\frac{1}{2}$
	20	To Baking a Pig	0	0	6

A Fruiterer's

A Fruiterer's Bill.

Mr. RICHARD ALLWORTHY.

Dr.

To SAMUEL FROSTYFACE.

1787.			£	s.	d.
Feb. 7	To a Bunch of Turnips	0	0	3	$\frac{1}{2}$
8	To two Bundles of Broccoli	0	0	11	
9	To a Sieve of Apples	0	8	2	
	To a Rope of Onions	0	0	5	$\frac{1}{2}$
10	To a Bunch of Turnips	0	0	2	$\frac{1}{2}$
13	To a Dozen of Lemons	0	0	9	
14	To Thyme, Celery, &c.	0	0	2	$\frac{1}{4}$
	To three Cabbages and a Savoy	0	1	7	$\frac{1}{2}$

A Vintner's Bill.

Mr. SAMUEL WICKS,

Dr.

To CHARLES BONNYFACE.

1787.			£	s.	d.
March 4	For one Dozen of White Port	0	19	4	
5	For one Dozen Red ditto	1	4	0	
6	For half ditto Mountain	0	12	9	
17	For half a Gallon of Rum	0	5	9	
April 7	For a Gallon of Brandy	0	13	6	
May 1	For a Dozen of old Red Port	1	5	0	
7	For three Gallons of Madeira	2	8	0	
9	For two Dozen of Sherry	1	18	0	

A Mercer's

A Mercer's Bill.

Mr. GEORGE GENTLEMOUTH,

Dr.

To GEORGE SAVEMUCH.

1787.		£	s.	d.
Jan.	7 To 9 Yards of Silk, at 14s. 6d. } per Yard	6	10	6
	9 To 12 Yards of flowered Ditto, } at 16s. 8d.	10	0	0
	15 To 16 Yards of Sarfenet, at } 6s. 9d.	5	8	0
	24 To 10 Yards of Sattin, at 9s. 6d.	4	15	0
	31 To 15 Yards of Brocade, at } 10s. 8d.	8	0	0
Feb.	8 To 11 Scarfs, at 2s. each	1	2	0
	14 To 14 Yards of Genoa Velvet, } at 17s. 4d.	12	2	8
	10 To 10 Yards of Lustreing, at 5s. 2d.	2	11	8

A Grocer's Bill.

Mr. CLEMENT SWEETNOSE,

Dr.

To ROBERT SIMMONDS,

1787.		£	s.	d.
Feb.	9 For 8 lb. of Raisins of the Sun } at 5d. per lb.	0	3	4
	12 For 15 lb. of Malaga Raisins, at } 4d. $\frac{1}{2}$	0	5	7 $\frac{1}{2}$
	15 For 10 lb. of Currants, at 6d. $\frac{1}{2}$	0	5	5
	21 For 11 lb. of Sugar, at 4d. $\frac{1}{2}$	0	4	1 $\frac{1}{4}$
Mar.	2 For 2 Sugar Loaves, 15 lb. } weight, at 9d.	0	11	3
	7 For 13 lb. of Rice, at 3d.	0	3	3
	21 For 5 lb. of Black Pepper, at 1s. 6d.	0	7	6
	30 For 10 oz. of Cloves, at 10d. } per Ounce,	0	8	4

A Linen

A Linen-Draper's Bill.

Mr. GEORGE GENTINGS,

Dr.

To WILLIAM YOUNGSTER,

1787.

		£	s.	d.
March 1	For 4 Pieces of Dowlas, containing 112 Ells, at 1s. 2d. per Ell,	6	10	8
8	For 3 Pieces of Holland, 60 ditto, at 2s. 4d.	7	0	0
	For 3 Pieces of ditto, 70 ditto, at 3s. 4d.	11	13	4
April 4	For 5 Pieces of Cambrick, 40 ditto, at 9s.	18	0	0
	For 3 Pieces of Cambric, 24 Yards, at 9s. 6d. per Yard	11	8	0
May 7	For 12 Pieces of blue Hartferds, 260 ditto, at 8d.	8	13	4
	For 2 Pieces of Muslin, 40 ditto at 12s.	24	0	0
July 8	For 4 Pieces of Muslin, 80 ditto at 14s.	56	0	0

An Upholsterer's Bill.

The Honourable the Lady CARIE,

Dr.

To FREDERICK TOWNSEND,

1787.

		£	s.	d.
Jan. 2	For 60 Yards green Silk Damask	34	15	0
7	For 4 doz. of green Silk binding Lace	4	5	0
21	For Buckram to line the Valens, Bases, &c.	0	10	6
	For 6 Yards of green Stuff to line the Valens	0	9	6
31	For a Set of carved Cornices	0	14	0
Feb. 8	For a Four-post Bedstead, Sacking Bottom and Castors	5	10	6
	For making he Bed and Window Curtains	2	14	0
15	For three Pair of large fine Blankets	3	12	0

A Bill of Disbursements.

1787.

July 11th, Laid out for a Leg of Lamb,
two shillings and three-pence. }
For Veal, four Shillings and }
Two-pence. }
For Pork, two Shillings and }
a Halfpenny. }
For Cheese, nine Shillings and }
Ten-pence. }
For Butter, four Shillings and }
Ten-pence. }
For Vegetables, Fifteen-pence }
Farthing. }
For Bread, Twenty Shillings }
and three-Pence Halfpenny. }

A Person is indebted to

- A. Twenty-three Pounds, seven Shillings }
and Nine Pence Farthing. }
- B. Ninety-four Pounds, twelve Shillings }
and Four Pence three Farthings. }
- C. Seventy-three Pounds three Shillings }
and Four Pence Halfpenny. }
- D. Forty-seven Pounds eighteen Shil- }
lings and Nine-Pence. }
- E. Ten Guineas.
- F. Eleven Shillings and Four-Pence }
Farthing. }

How much does the Person owe in all ?

Sub-

Subtraction

Is that which teacheth to take one Number out of another, so that the Remainder, Difference, or Excess may be known.

This Rule is the direct contrary to Addition, and here the same Caution that was given in Addition of placing Units under Units, Tens under Tens, and so on must be duly observed; also observe to place the lesser Number under the greater, and the Work is done thus: Begin at the right Hand as you did in Addition, then take the lower Figure out of that which stands over it, setting down the Remainder or Difference underneath its own Place: If the two Figures chance to be equal, set down a Cypher, but if the lower Figure be greater than the Upper, then borrow (that is, add) Ten to the upper Figure, and take the lower from it; set down what remains, remembering always when you borrow Ten, to add one to the next Figure in the lower Line; then take that Figure from the Upper as you did before, set down the Remainder, and so go on till you have gone through the Line.

E X A M P L E S.

From	4748374	77482462	4874642	82743642
Sub.	3613143	41232341	1243241	11432431

From	8743234	4723443	2114324	2347482
Sub.	4312212	1112134	1241395	1913574

From	8746414	54716484	8743242	1747434
Sub.	1947832	12943417	1952874	0983471
	<u> </u>	<u> </u>	<u> </u>	<u> </u>

From	3271454	4716834	1987460	2040410
Sub.	1941689	1237421	0994621	1934724
	<u> </u>	<u> </u>	<u> </u>	<u> </u>

From	4000074	50020071	6748424	823470
Sub.	1916123	11014138	1932487	111814
	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Subtraction of Money.

Begin with the least Denomination, as in Addition of Money, and take the lower Figure from the upper, and set down the Remainder; but if the lower Denomination is greater than the upper, borrow or add as many to the upper as make one of the next higher Name or Denomination, and then take the lower Figure from the Upper, with what was added to it, and set down what remains, remembering to carry one for that which you borrow to the next Denomination, and your Work is done.

E X A M P L E S.

	£	s.	d.		£	s.	d.		£	s.	d.
From	147	14	8 $\frac{3}{4}$	471	19	2 $\frac{3}{4}$	174	12	8 $\frac{3}{4}$		
Sub.	029	13	4 $\frac{1}{4}$	194	12	1 $\frac{1}{2}$	019	14	4 $\frac{3}{4}$		
	<u> </u>			<u> </u>			<u> </u>				
	<u> </u>			<u> </u>			<u> </u>				

	£	s.	d.		£	s.	d.		£	s.	d.
From	271	14	8 $\frac{3}{4}$		271	16	1 $\frac{1}{4}$		427	14	8 $\frac{1}{2}$
Sub.	191	18	4		094	13	4		194	13	4 $\frac{1}{2}$

	£	s.	d.		£	s.	d.		£	s.	d.
From	191	12	1 $\frac{1}{2}$		471	12	4 $\frac{1}{4}$		191	4	8 $\frac{1}{2}$
Sub.	094	17	8 $\frac{1}{2}$		191	13	7 $\frac{3}{4}$		082	6	10

	£	s.	d.		£	s.	d.		£	s.	d.
From	471	19	2 $\frac{1}{2}$		834	13	1 $\frac{1}{2}$		741	19	3 $\frac{1}{2}$
Sub.	192	13	1 $\frac{3}{4}$		194	12	4 $\frac{1}{2}$		141	18	2 $\frac{1}{4}$

	£	s.	d.		£	s.	d.		£	s.	d.
From	204	0	0 $\frac{1}{4}$		468	10	0 $\frac{1}{2}$		471	0	4 $\frac{1}{4}$
Sub.	191	10	4		194	8	0 $\frac{1}{4}$		191	10	8

	£	s.	d.		£	s.	d.		£	s.	d.
From	104	17	8		274	13	4		471	10	8
Sub.	092	18	4 $\frac{1}{2}$		191	18	8 $\frac{1}{4}$		192	14	6 $\frac{1}{2}$

	£	s.	d.		£	s.	d.		£	s.	d.
From	74	00	0		841	10	0		64	14	0
Sub.	19	19	10 $\frac{1}{4}$		197	14	8 $\frac{1}{2}$		19	18	4 $\frac{1}{2}$

From 47l. 10s. 4d. $\frac{3}{4}$ take 29l. 14s. 4d. $\frac{1}{2}$

Borrowed 20l. 10s. 10d. and paid 13l. 13s. 4d. $\frac{1}{4}$;
What remains unpaid?

Take 27l. 14s. 6d. $\frac{1}{2}$ from 100 Pounds, and shew
what remains.

Paid 19l. 16s. 4d. $\frac{1}{4}$ in Part of 30 Guineas bor-
rowed, What remains unpaid?

If I pay 7 Shillings and 4 Pence three Farthings in
Part of 1l. 13s. 8d. borrowed; How much remains
unpaid?

H. Studios's Master gave him his Bill for School-
ing, which came to 18 Shillings and Ten-Pence;
H. Studios brought a Guinea to pay it, How much
Change had the Master to return?

William Free purchased Articles amounting to 1l.
17s. 4d. $\frac{1}{4}$ for his Father, who gave him two Guineas;
What Change did he bring Home, allowing he spent
6d. for himself?

What Sum, added to 874l. 10s. 4d. $\frac{1}{4}$, will make
1000 Pounds?

A Gentleman's Estate is worth 3000l. per Ann. he
lays by 741l. 9s. 9d. What are his Expences?

Bought Goods to the Amount of 57l. 10s. paid
down 19l. 10s. 4d. $\frac{1}{4}$; a Month after, 13l. 17s. 4d. $\frac{1}{4}$;
How much remains unpaid?

Sold Goods to the Amount of 69l. 17s. and received
a Bank Note of 20 Pounds; a Month after, 16l. 14s.
4d. and to draw for the rest; Pray what was the Sum
I had to draw for?

Jones had 123 Marbles, and *Samson* 241; Who had most, and how many?

Thomas had 159 Marbles, he played with *John Sly*, and lost 47, he played with *Timothy Sure*, and lost 36; Pray how many had he left?

500 Soldiers were sent to a Garrison; in six Months Time they were sent for back, but what with Engagements and Fatigue 139 of them died; How many Soldiers returned?

To another Garrison there were sent at one Time 1000 Men, at another Time 4000, at another Time 1500; there were slain in Skirmishes 1290, died of Wounds 319, of Fatigue 191; Pray how many Men survived?

Samuel Young disputed with *William Sprightly* who had done most Sums; they therefore, to satisfy themselves, counted the Number of Sums they had done in each Rule; *S. Young* found he had done 15 in Addition, 21 in Addition of Money, 33 in Subtraction, and 47 in Multiplication. *William Sprightly* had done 32 in Addition, 39 in Subtraction, and 57 in Multiplication; Pray which of these had done the greatest Number?

Master Samuel Trusty was sent by his Father with different Bills, he received one of 6l. 10s. 4d. $\frac{1}{2}$, one of 7l. 11s. and one of 6 Guineas. — He had to pay one of 2 Guineas and a Half, another of 3 Pounds 12 Shillings and one Penny; another of 1l. 12s. 4d. $\frac{1}{2}$, and another of 2l. 17s. 8d. $\frac{1}{4}$; Pray what Sum did *Master Trusty* bring home, allowing he made no Mistake?

A Trader failing was indebted to A. 171l. 19s. 4d. to B. 137l. 4s. 8d. $\frac{1}{2}$, to C. 164l. 18s. 4d. $\frac{1}{2}$, and to D. 105l.

D. 1051. At the Time of this Disaster, he had by him in Cash, 3l. 13s. 10d. in Commodities, he had 97l. 10s. 4d. $\frac{1}{4}$ in Household Furniture, 111l. 19s. 4d. $\frac{1}{4}$ in recoverable Debts 27 Pounds 10 Shillings, in a Tenement twenty Guineas; now, supposing these Things to be delivered up, How much will they loose by him?

Suppose a Person born in the Year of our Lord, one Thousand seven Hundred and Forty-nine, How old is he in this present Year?

Thomson was born one Thousand seven Hundred and Forty-three; How many Years older is he than Samuel Cuning, who was born in 1752?

There are two Numbers, one is 427, the Lesser 143; What is their Difference?

The Sum of two Numbers, is 1549, the lesser Number is 614; What is the greater Number?

Multiplication

Is a short and compendious Method of performing several Additions; to perform which there are two given Numbers.

First, The Number to be multiplied, which is generally put the greater of the two Numbers, and is commonly called the Multiplicand.

Second, is the Number by which the First is to be multiplied, and is usually called the Multiplier. From these two rises a Third, called the Product. Before any Operation can be readily performed in Multiplication, the following Table must be perfectly learned by Heart.

MULTIPLICATION TABLE.

2 Times	$\left\{ \begin{array}{c} 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 4 \\ 6 \\ 8 \\ 10 \\ 12 \\ 14 \\ 16 \\ 18 \\ 20 \\ 22 \\ 24 \end{array} \right\}$	4 Times	$\left\{ \begin{array}{c} 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 16 \\ 20 \\ 24 \\ 28 \\ 32 \\ 36 \\ 40 \\ 44 \\ 48 \end{array} \right\}$	7 Times	$\left\{ \begin{array}{c} 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 49 \\ 56 \\ 63 \\ 70 \\ 77 \\ 84 \end{array} \right\}$
3 Times	$\left\{ \begin{array}{c} 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 9 \\ 12 \\ 15 \\ 18 \\ 21 \\ 24 \\ 27 \\ 30 \\ 33 \\ 36 \end{array} \right\}$	5 Times	$\left\{ \begin{array}{c} 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 25 \\ 30 \\ 35 \\ 40 \\ 45 \\ 50 \\ 55 \\ 60 \end{array} \right\}$	8 Times	$\left\{ \begin{array}{c} 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 64 \\ 72 \\ 80 \\ 88 \\ 96 \end{array} \right\}$
				6 Times	$\left\{ \begin{array}{c} 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 36 \\ 42 \\ 48 \\ 54 \\ 60 \\ 66 \\ 72 \end{array} \right\}$	9 Times	$\left\{ \begin{array}{c} 9 \\ 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 81 \\ 90 \\ 99 \\ 108 \end{array} \right\}$
								10	$\left\{ \begin{array}{c} 10 \\ 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 100 \\ 110 \\ 120 \end{array} \right\}$
								11	$\left\{ \begin{array}{c} 11 \\ 12 \end{array} \right\}$	make	$\left\{ \begin{array}{c} 121 \\ 132 \end{array} \right\}$
								12	12	make	144

Having learned the above Table, proceed thus; place the Multiplier under the Multiplicand, begin by multiplying the Multiplier by the first Figure in the Multiplicand, setting down the Odds, and carry the Tens, as you did in Addition, to the next Figure you multiply by, and so continue till you have gone through the Line.

E X A M P L E S.

157639428	714832596	471836952	571649283
2	3	4	5
_____	_____	_____	_____
_____	_____	_____	_____

27145395 6	483279168 7	473279168 8	123456789 9
235618957 10	471389562 11	274319685 11	428361957 12

If there should be Cyphers at the End of the Multiplier or Multiplicand, they may be omitted, remembering after you have multiplied by the other Figure, to set down on the right Hand of the total Product as many Cyphers as were omitted.

471835619 10	1478345 20	147895216 30	27460460 40
2804687 50	8746940 60	4782594 70	4718246 80
1932474 90	27416849 100	5274913 120	8743241 120
			Should

Should the Multiplier exceed Twelve, and less than Twenty, multiply by the Figure in the Unit's Place ; add to each Product the Figure of the Multiplicand which stands on the right Hand, set down the Overplus of Tens and carry as usual.

$$\begin{array}{r} 324569817 \\ 13 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 123456897 \\ 14 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 587436912 \\ 15 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 71468524 \\ 16 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 54719304 \\ 17 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 5271464 \\ 18 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 12747589 \\ 19 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 192837463 \\ 18 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 41783459 \\ 13 \\ \hline \hline \end{array}$$

When the Multiplier consists of several Figures, let each Figure in the Multiplier stand under its proper Place ; then multiply by each Figure of the Multiplier, remembering to place the first Figure of each Product under the Figure you multiply with ; add the several Products together, and the Sum will be the desired Product.

$$\begin{array}{r} 194389562 \\ 42 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 19748328 \\ 63 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 14871389 \\ 126 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 571698734 \\ 421 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 8164361604 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 1244144664 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 1873795014 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 240685167014 \\ \hline \hline \end{array}$$

19873257	51710484	746195894
632	9603	4321

12559898424	49657577852	3224212457974
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478328709	457431946	74283461894
86031	980624	654321

41151097163979 448568744614304 48605229069943974

123456789	30400481407
987654321	80402

121932631112635269	2444259506085614
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904716835	1304874674
296003	9178001

267798897310505	11976141062846674
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5046198324	3271482404
200059	5400140

1009537390501116	17666462989136560
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Multiplica-

Multiplication of Money.

Rule. Multiply the Price by the Quantity, observing to carry in the same Manner as was done in Addition of Money.

E X A M P L E S.

If one Pound of Tea cost 5s. 4d. How much will two Pounds come to ?

If one Pound of Sugar cost 7d. $\frac{1}{2}$, How much will two Pounds come to ?

If a Pair of Shoes cost 4s. 9d. $\frac{1}{2}$, How much will four Pair come to ?

If one Dozen of Candles be worth 7s. 2d. $\frac{1}{2}$, How much will six Dozen come to ?

Bought seven Pair of Shoes ; What come they to, at 4s. 9d. $\frac{1}{4}$ per Pair ?

Sold eight Pair of Hose, at 7s. 8d. $\frac{1}{4}$; What come they to ?

How much will nine Pair of Kid Gloves come to, at 2s. 4d. $\frac{3}{4}$ per Pair ?

Ten Hats, at 14s. 10d. $\frac{3}{4}$ each ; What come they to ?

Find the Worth of eleven Reams of Paper, at 11s. 4d. $\frac{1}{4}$ per Ream.

A Man spends 10l. 10s. 4d. $\frac{3}{4}$ every Month ; What is his yearly Income ?

If one Skin is worth 2s. 4d. $\frac{1}{4}$, What is the Worth of Twelve ?

D

Multiply

Multiply	£	s.	d.	
2	17	4	$\frac{1}{4}$	by 2
14	18	6	$\frac{3}{4}$	by 4
26	13	8	$\frac{1}{2}$	by 6
90	0	4	$\frac{3}{4}$	by 8
40	1	0		by 10
104	17	0	$\frac{1}{4}$	by 10
19	4	8	$\frac{1}{4}$	by 3
127	14	7	$\frac{1}{4}$	by 5
91	14	8	$\frac{1}{2}$	by 7
47	14	0	$\frac{1}{4}$	by 9
83	0	0	$\frac{1}{4}$	by 11
61	0	4		by 11

Should the Quantity exceed 12, find what two Numbers, one multiplied into another, will produce the given Quantity ; then multiply the Price of one, by the one Number, and that Sum or Product by the other Number, the Product will be the Answer.

E X A M P L E S.

How much will 15 Ells of Holland be worth. at 6s. 4d. $\frac{1}{4}$?

Answer, 4l. 15s. 3d. $\frac{3}{4}$

How much will 18 Yards of flowered Silk come to, at 17s. 4d. $\frac{1}{4}$?

Answer, 15l. 12s. 4d. $\frac{1}{2}$.

Twenty-one Pair of Womens silk Gloves. What come they to, at 4s. 7d. $\frac{1}{4}$ per Pair?

Answer, 4l. 16s. 8d. $\frac{1}{4}$.

A Man spends 3s. 10d. $\frac{3}{4}$ every Day ; How much does he spend in 27 Days?

Answer. 5l. 5s. 2d. $\frac{1}{4}$.

How

How much will the cloathing of 32 Boys come to, at 1l. 17s. 4d. $\frac{1}{4}$ each?

Answer, 59l. 15s. 4d.

What is the Worth of a large Brass Pot and Sauce-pan, weighing 36 Pounds, at 1s. 8d. $\frac{3}{4}$ per lb?

Answer, 3l. os. 9d.

Forty-five Gallons of Rum, at 7s. 4d. $\frac{1}{4}$ per Gallon.

Answer, 16l. 10s. 11d. $\frac{1}{4}$.

Fifty-four Otter Skins, at 3s. 6d. per Skin.

Answer, 9l. 9s.

How much will 63 Pair of Shoes be worth, at 5s. 4d. $\frac{1}{4}$ per Pair?

Answer, 16l. 17s. 3d. $\frac{3}{4}$.

Sixty-six Yards of Scarlet, at 1l. 2s. 10d. per Yard.

Answer, 75l. 7s.

Find the Worth of 72 Russia Hides, at 12s. 4d. $\frac{1}{4}$ each.

Ans. 44l. 9s. 6d.

How much is the Value of a Tea Table and Stand plated, weighing 99 Ounces, at 7s. 10d. $\frac{3}{4}$ per Ounce?

Ans. 30l. 1s. 8d. $\frac{1}{4}$.

Eighty-four Quarters of Malt. What is the Value, at 1l. 17s. 4d. $\frac{3}{4}$ per Quarter?

Ans. 157l. 1s. 3d.

108 Hats, at 9s. 4d. $\frac{1}{4}$ each.

Ans. 50l. 10s. 3d.

What will the Dying of 121 Pieces of Exeter Stuffs, Yellow, come to, at 12s. 4d. $\frac{1}{4}$ per Piece?

Ans. 74l. 14s. 10d. $\frac{1}{4}$.

144 Reams of Paper at 13s. 4d. per Ream.

Ans. 96l.

1210 Yards

1210 Yards of Shaloon, at 2s. 2d. per Yard.

Ans. 131l. 1. 1d.

Bought 132 Bushels of Oats, and was to pay after the Rate of 2s. 1d. $\frac{3}{4}$ per Bushel, for which I gave a 20l. Bank Note; What Change had I to receive?

Ans. 5l. 16s. 9d.

Sold 144 Thousand Bricks, and was to receive 14s. 8d. per Thousand; What Change had I to give out of a Bank Note of 150l. Sterling.

Ans. 44l. 8s.

If no two Numbers, multiplied together, will make the exact Quantity, then find two which will come the nearest to the given Quantity, and having multiplied by them, multiply the given Price by the Quantity wanting; add it to the last Product, will give the required Answer.

23 Pounds of Tea, what come they to, at 5s. 7d. $\frac{1}{4}$?

Ans. 6l. 8s. 10d. $\frac{3}{4}$.

If 1 Cwt. of Sugar be worth 2l. 17s. 4d. $\frac{1}{4}$, How much will 34 Cwt. come to?

Ans. 97l. 10s. $\frac{1}{2}$.

47 Cwt. of Cheese; What is its Worth, at 1l. 17s. 4d. $\frac{3}{4}$ per Cwt?

Ans. 87l. 17s. 7d. $\frac{1}{4}$.

Sold 59 Russia Hides; What do they come to, at 7s. 9d. $\frac{1}{4}$ each?

Ans. 22l. 18s. 5d. $\frac{3}{4}$.

How much will 61 Yards of Scarlet come to, at 1l. 1s. 10d. per Yard?

Ans. 66l. 11s. 10d.

67 Bushels of Wheat, at 4s. 1d. $\frac{3}{4}$ per Bushel.

Ans. 13l. 17s. 9d. $\frac{1}{4}$.

69 lb.

69 lb. of Baladine Silk, at 18s. 4d. $\frac{1}{4}$ per lb.

Ans. 63l. 6s. 5d. $\frac{1}{4}$.

How much will a Journeyman's Wages amount to in 76 Days, at 3s. 7d. $\frac{1}{4}$ per Day?

Ans. 13l. 13s. 11d.

79 lb. of Gum Arabic, at 8d. $\frac{1}{4}$ per lb.

Ans. 2l. 14s. 3d. $\frac{1}{4}$.

Sold 83 Yards of Yorkshire Cloth; What comes it to, at 6s. od. $\frac{1}{4}$ per Yard?

Ans. 24l. 19s. 8d. $\frac{1}{4}$.

What is the Worth of 94 Dozen of Quart Bottles, at 3s. 6d. $\frac{1}{4}$ per Dozen?

Ans. 16l. 10s. 11d. $\frac{1}{2}$.

Find the Worth of 17 Fitches of Bacon, weighing 107 Stone, at 3s. od. $\frac{1}{4}$ per Stone.

Ans. 16l. 3s. 2d. $\frac{1}{4}$.

Bought 115 Stone of Beef, What comes it to, at 2s. 5d. $\frac{1}{4}$ per Stone?

Ans. £14 5 1 $\frac{1}{4}$

What Sum paid the Purchase of 123 Dozen of Canary, at 1l. 2s. 4d. $\frac{1}{4}$ per Dozen?

Ans. £137 9 6 $\frac{1}{4}$.

137 Cwt. of Tobacco, at 4l. 17s 4d. $\frac{1}{4}$ per Cwt.

Ans. 666l. 17s. 6d. $\frac{1}{4}$

149 Calves Skins, at 3s. od. $\frac{1}{4}$ each.

Ans. 22l. 16s. 3d. $\frac{1}{4}$.

Gave 100 Guineas in Part of Payment for the Purchase of 111 Cwt. of Sugar, at 1l. 19s. 4d. $\frac{1}{4}$; Pray how much more have I to pay to discharge the Purchase?

Ans. 113l. 12s. 11d. $\frac{1}{4}$

Sold

Sold 29 Yards of fine Holland, at 4s. 9d. $\frac{1}{2}$ per Yard, and received 5 Guineas and $\frac{1}{2}$, How much more have I to receive?

Ans. 1l. 4s. 0d. $\frac{1}{4}$.

Should the Quantity exceed 150, find the Value of 100, by multiplying the Price by 10 and by 10, and that Product by the Number of Hundreds in the Quantity, and the Product of the first Ten by the Figure which stands in the Place of Tens in the Quantity, and the Price of one by the Figure, which stands in the Place of Units; the Value of the Hundreds, Tens, and Units, added together, will give the Answer.

Bought 264 Gallons of Rum; What comes it to, at 8s. 10d. $\frac{1}{2}$ per Gallon?

Ans. 116l. 17s. 6d.

What is a Man's yearly Expence who spends one Day with another 7s. 10d. $\frac{1}{4}$?

Ans. 143l. 6s. 9d. $\frac{1}{4}$.

How much will 347 Cwt. of Sugar amount to, at 2l. 17s. 4d. $\frac{1}{4}$ per Cwt?

Ans. 995l. 1s. 10d. $\frac{3}{4}$.

If one Ell be worth 17s. 4d. $\frac{1}{4}$, How much will 426 Ells be worth at the same Rate?

Ans. 369l. 12s. 10d. $\frac{1}{4}$.

472 Yards, at 12s. 6d. per Yard, the Value is demanded.

Ans. 295l.

594l. of Tea, at 6s. 0d. $\frac{1}{2}$ per lb. What is the Worth?

Ans. 179l. 8s. 9d.

672 Quarters of Corn, at 1l. 1s. $\frac{1}{4}$ per Quarter.

Ans. 706l. 6s.

How

How much will the Cloathing of 540 Men come to, at 2l. 17s. 4d. $\frac{1}{4}$ each Man?

Ans. 1548l. 11s. 3d.

704 Gallons of Brandy, at 11s. 4d. $\frac{1}{4}$ per Gal.

Ans. 399l. 13s. 4d.

750 Ells, at 5s. 4d. $\frac{3}{4}$ per Ell.

Ans. 202l. 6s. 10d. $\frac{1}{2}$.

893 Yards, at 10s. 4d. per Yard.

Ans. 461l. 7s. 8d.

963 Gallons of Oil, at 5s. 4d. $\frac{1}{4}$ per Gallon.

Ans. 257l. 16s. $\frac{3}{4}$.

When the Quantity consists of $\frac{1}{2}$, $\frac{1}{3}$, or $\frac{2}{3}$ more than a given Quantity, find first the Value of the whole Quantity; then if $\frac{1}{2}$ add $\frac{1}{2}$ of the Price; if $\frac{1}{3}$ then add $\frac{1}{3}$ the Price; if $\frac{2}{3}$ add the $\frac{1}{2}$ and the $\frac{1}{4}$ to the Value of the whole Quantity, and it will give the desired Answer.

I agreed to pay at the Rate of 5s. 4d. $\frac{1}{4}$ per Yard for a Piece of Cloth, when it came to be measured there was found 23 Yards and a Half: How much had I to pay for the said Piece?

Ans. 6l. 5s. 9d. $\frac{3}{4}$.

Went to Market and bought 17lb. and $\frac{1}{2}$ of Beef; What came it to at 3d. $\frac{1}{2}$ per lb?

Ans. 5s. 1d. $\frac{1}{4}$.

Agreed for a Silver Tankard to pay 6s. 9d. per Ounce, it weighed 14 oz. and $\frac{1}{2}$; What had I to pay for the Tankard?

Ans. 4l. 17s. 10d. $\frac{1}{2}$.

Bought 29 lb. and $\frac{1}{4}$ of twisted Silk in Grain, What comes it to, at 3s. 4d. per lb?

Ans. 4l. 17s. 6d.

What

What will 47 Ells and a Quarter of Diaper come to, at 2s. 8d. per Ell? Anf. 6l. 6s.

How much will a Fangot of Raw Silk amount to, weighing 133lb. and $\frac{1}{4}$, at 14s. 6d. $\frac{1}{2}$ per lb? Anf. 96l. 17s. 8d.

Find the Value of 68 lb. $\frac{3}{4}$ of Smyrna Coffee, at 4s. 4d. $\frac{1}{4}$ per lb. Anf. 14l. 19s. 4d.

Sold 79 Gallons and $\frac{3}{4}$ of Vinegar, at 1s. 10d. $\frac{1}{4}$ per Gall. Anf. 7l. 7s. 10d. $\frac{1}{4}$.

What is the Worth of 7 Cwt. $\frac{3}{4}$ of Sugar, at 2l. 10s. 10d. $\frac{1}{4}$ per Cwt. Anf. 19l. 14s. 1d. $\frac{1}{4}$.

Bought of *William Knightmoon* 11 Pieces of Stuff, each containing 37 Yards and $\frac{1}{4}$; I desire to know what Money will discharge the Purchase, at 9s. 4d. $\frac{1}{4}$ per Yard? Anf. 19l. 12s. 9d. $\frac{3}{4}$.

Sold 87 Yards and $\frac{1}{2}$ of flowered Lawn, at 2s. 7d. $\frac{1}{4}$ per Yard, what comes it to? Anf. 11l. 7s. 10d. $\frac{1}{4}$.

What will 8 Pieces of Shaloon, each 39 Yards and $\frac{3}{4}$, come to, at 2s. 3d. $\frac{1}{4}$ per Yard? Anf. 36l. 2s.

William Brown has 12 Pieces of Diaper, each 13 Yards and $\frac{1}{2}$, worth 1s. 3d. per Yard: *Samuel Johnson* has 6 Pieces of white Fustian, containing each 25 Yards and $\frac{1}{4}$, worth 3s. 9d. $\frac{1}{4}$ per Yard; they change Commodities, agreeing that the Difference should be paid in Money; Pray who receives the Difference?

Anf. *Samuel Johnson's* Cloth is worth more than *William Brown's*, by 12l. 15s. 7d. $\frac{3}{4}$.

I bought

I bought 4 Hogheads of Tobacco, each of which weighed 3 Cwt. $\frac{3}{4}$, was to pay at the Rate of 2l. 17s. 4d. $\frac{1}{4}$ per Cwt. the Expences of Carriage, &c. amounted to 2l. 17s. 4d. $\frac{1}{4}$, and paid towards the Purchase 12l. 18s. 4d. $\frac{3}{4}$; What Sum have I to pay more?
 Anf. 32l. 19s. 3d. $\frac{1}{4}$.

What is the Product of 78478, multiplied by 874?
 Anf. 68589772.

Division

Is that by which any given Number may be divided into as many Parts as is thought proper, and shews how often one Number is contained in another; and to perform the Operation there are required two Numbers.

The one of them is that Number which is proposed to be divided, and is called the Dividend.

The other is that by which the Dividend is to be divided, called the Divisor.

From these arise a third Number, called the Quotient, which shews how often the Divisor is contained in the Dividend, or into what Number of equal Parts the Dividend is then divided.

There frequently arises a fourth Number, called the Remainder, and is that which remains after the Operation is wrought.

The Manner of working of Division may be formed thus; If the Divisor is less than 12, find how often the Divisor is contained in the first Figure, or that which stands on the left Hand of the Dividend, set the

E
Number

Number down as the first Figure of the Quotient, and consider what is over and above the Number of Times it is contained in the Dividend (if any) that Number which is over must be placed on the left Hand of the next Figure in the Dividend ; then find again how often the Divisor is contained therein, set down the Number of Times, and the Overplus place before the following Figure, and proceed in like Manner till you have gone through the Line, and the Work is ended.

E X A M P L E S.

2)46824474(	2)84746844(	3)639894741(
3)47489274(	4)14784474(	4)82347184(
5)714834691(	5)7483464(	6)748345671(
6)96752167(	7)8653219852(	7)893254132(
8)134569723(	8)754321967(	9)321232123(
9)679321973(	10)63927399(	10)95432169(
11)52343218(	11)87321532(	
12)632132567(	12)93765432(	

If the Divisor be more than 12, first find how often the first Figure on the left Hand of the Divisor is contained in the first (or if not in the first take the first and second) Figure of the Dividend ; the Number set down as the first Figure in the Quotient, and multiply it by the Divisor, subtract it from the Dividend, observing that the Figures are placed under the left Part of the Dividend ; then subtract it therefrom, and to that Remainder bring down the next Figure to that you subtracted the first from ; then again seek how

how often the first Figure of the Divisor is contained in the first, or first and second Figures of the Remainder; set down the Number of Times in the Quotient; multiply it by the Divisor, subtract it from the last Remainder, bring down the next Figure to that you brought down last; proceed in the same Manner till all the Figures are brought down.

It is plain that the chief Things to observe are,

- 1st. Seek.
- 2d. Multiply.
- 3d. Subtract.
- 4th. Bring down.

E X A M P L E S.

Divide 4876658 by 21
227745 Quotient. 3 Remains.

Divide 7836494 by 21
373166 Quo. 8 Rem.

Divide 5478247 by 31
176717 Quo. 20 Rem.

Divide 4783648 by 217
22044 Quo. 100 Rem.

Divide 82712741 by 418
197877 Quo. 155 Rem.

Divide 8004197464 by 50047
159933 Quo. 30613 Rem.

Divide 871467427 by 4167
209135 Quo. 1882 Rem.

Divide 741687468 by 6182
119975 Quo. 2018 Rem.

Divide 4746891274 by 314784
15079 Quo. 263338 Rem.

Divide 46832741 by 372
125894 Quo. 173 Rem.

Divide 18346474 by 274
66957 Quo. 256 Rem.

Divide 74834748 by 564
132685 Quo. 408 Rem.

Divide 1847484741 by 17464
105788 Quo. 3109 Rem.

Divide 49164827485 by 47461
1035899 Quo. 24946 Rem.

Divide 12469042744 by 274689
45393 Quo. 84967 Rem.

Divide 1946874687 by 27404
12315 Quo. 12315 Rem.

Divide 846234689 by 37
30 Quo. 30 Rem.

Divide 1364274844 by 149
1 Quo. 1 Rem.

Divide 89467482 by 746
448 Quo. 448 Rem.

Divide 87462746 by 27409
627 Quo. 627 Rem.

Divide 574648747 by 81412

Divide

Divide 4873274574 by 12174

Divide 1947847141 by 16348

Divide 47048328947 by 20042164.

Should the Divisor contain Cyphers on the right Hand, cut them off, and the same Number of Figures off the Dividend must also be cut off, remembering that those Figures so cut off in the Dividend must be placed to the Remainder.

E X A M P L E S.

20)4784787(30)4878947(40)8740287(

500)7874828(600)8748784(

700)84784789(800)87004704(900)187478104(

1000)47848748(100)4787871(1200)147841104(

Divide 574648747 by 81400

Rem 4614.

Divide 4873274575 by 12170

Rem. 49647

Divide 1947847141 by 416300

Rem. 395741

Divide 47048328947 by 20040000

Rem. 14448947

Divide 8782748747 by 3370000

Divide 28747827487 by 12784000

Division

Division of Money; or, An Application of Division.

In the working of Sums in this Rule, observe if any Thing should remain after the whole Number is divided; then that which remains must be multiplied by as many as make one of the next lower Name, which add to the next, dividing it by the Divisor, and setting down the Number.

E X A M P L E S.

	£.	s.	d.	
Divide	74	10	4 $\frac{1}{2}$	by 2
—	45	15	6 $\frac{3}{4}$	— 3
—	21	17	8 $\frac{1}{4}$	— 4
—	87	14	2 $\frac{1}{4}$	— 5
—	97	18	6 $\frac{1}{4}$	— 6
—	104	0	4	— 7
—	474	8	0	— 8
—	182	6	10	— 9
—	73	16	8 $\frac{3}{4}$	— 2
—	19	17	1 $\frac{1}{4}$	— 3
—	271	16	8 $\frac{1}{2}$	— 4
—	197	14	6 $\frac{3}{4}$	— 6
—	874	14	10 $\frac{1}{4}$	— 5
—	146	17	0 $\frac{3}{4}$	— 7
—	145	00	0	— 8

Gave 10l. 15s. 4d. for 9 Hats; What cost 1?

If 10 Yards of Broad Cloth cost 3l. 17s. 8d. What cost 1?

How

How much will be the Worth of 1 Ell, when 10 Ells cost 14l. 11s. 10d.

Gave 9l. 12s. 4d. $\frac{1}{4}$ for 11 Yards of broad Cloth. What cost 1?

Divide 74l. 10s. 4d. $\frac{1}{4}$ among 11 Men.

A Man spends 400l. a Year; How much is that per Month?

Divide 147l. 18s. 4d. $\frac{3}{4}$ by 12.

Suppose I gave my Servant 18 Guineas per Year, What does his monthly Wages amount to?

If the Divisor is more than 12, and a composite Number, that is, such a Number as two Numbers multiplied together will make the Divisor, divide the Dividend by the one, and the Quotient by the other Figure; that Quotient will be the desired Quotient.

But as it frequently happens there will be a remainder to both Divisions, and neither of them the true one, the true Remainder will be found by multiplying the last Remainder, by the first Divisor, and to the Product add the first Remainder will give the true one.

What cost 1 Ell of Holland, when 4l. 4s. 4d. $\frac{1}{2}$ is given for 25 Ells?

Ans. 3s. 4d. $\frac{1}{2}$.

If 26l. 15s. 2d. $\frac{1}{2}$ is given for 35 Firkins of Butter, How much will 1 Firkin come to?

Ans. 15s. 3d. $\frac{1}{2}$,

What cost 1 Gallon of Brandy, when a Tierce is worth 8 Guineas and a Half?

Ans. 4s. 3d.

Divide

Divide 742l. 14s. 8d. $\frac{3}{4}$ among 55 Men.

Ans. 13l. 10s. 1d. 7 over.

Divide 2754l. 12s. 4d. $\frac{1}{4}$ by 64.

Ans. 43l. 9d. $\frac{3}{4}$. 17 over.

Paid 147l. 14s. 8d. $\frac{1}{4}$ for 77 Cwt. of Cheese ; At what Rate was that per Cwt.

Ans. 1l. 18s. 4d. $\frac{1}{4}$. Remains 68.

Divide 7467l. 14s. 8d. $\frac{1}{4}$ by 81.

Ans. 92l. 3s. 10d. $\frac{1}{4}$. 39 over.

Divide 4783l. 14s. 6d. $\frac{3}{4}$ into 96 equal Parts.

Ans. 49l. 16s. 7d. $\frac{1}{4}$. 27 over.

Suppose I have 108 Cwt. of Tobacco, which cost me 401l. 10s. What is that per Cwt. ?

Ans. 3l. 14s. 4d. 96 over.

Divide 1147l. 9s. 8d. among 121 Sailors.

Ans. 9l. 9s. 8d.

Divide 374l. 15s. among 132 Soldiers.

Ans. 2l. 16s. 9d. $\frac{1}{4}$. 60 over.

Suppose the Cloathing of 220 Children amounts to 606l. 14s. What is the Expence of each ?

Ans. 2l. 15s. 1d. $\frac{3}{4}$. 92 over.

A Privateer, consisting of 330 Men, took a Prize worth 5000l. What was each Man's Share ?

Ans. 15l. 3s. 0 $\frac{1}{4}$. 150 over.

A Prize was taken worth 7486l. by 450 Men, besides Officers ; $\frac{3}{8}$ went amongst the Captain and Officers, the rest was equally divided among the Men. How much was that to each ?

Ans. 10l. 7s. 11d. $\frac{3}{4}$. 150 over.

Divide

Divide 4874l. 17s. 4d. $\frac{1}{4}$ by 630.

Ans. 7l. 14s. 9d. 233 over.

A certain Man intended to go a Journey of 594 Miles in 18 Days; How many Miles in a Day must he walk to complete his Journey?

Ans. 33 Miles.

A Gentleman who had 2 Sons and 8 Daughters, and whose Effects were worth 37094l. left in his Will that his Widow should have $\frac{1}{3}$. the Sons $\frac{1}{4}$ th of the Remainder, and the rest should be equally divided among the Daughters; How much was each Daughter's Portion?

Ans. 2318l. 7s. 6d.

A Man took a Journey of 640 Miles, he walked 27 Miles every Day; How many Days was he performing his Journey?

Ans. 23 Days. $\frac{19}{27}$

How much is the 43d Part of 74382?

Ans. 1729. Remain 35.

I would plant 2072 Elms in 14 Rows, 25 Feet asunder; How long will the Grove be?

Ans. 3700 Feet.

Twelve Men, each subscribed every Month for one Year 17s. 9d. towards the purchasing of Lottery Tickets; they purchased as many as their Money would allow; they were fortunate enough to have a 5000l. a 1000l. and two 500l. Prizes; it cost them for Discounts, Treats, and sundry other Expences 500l. 14s. 9d. I wish to know how much was paid in by all; how much each Man subscribed, and how much each cleared from his Adventure?

Ans. 127l. 16s. subscribed in all. 10l. 13s. subscribed by each. 530l. 19s. 1d. $\frac{1}{4}$ what each Man cleared from his Adventure.

Of Bills of Parcels.

A Bill of Parcels is an Account given by the Seller to the Buyer, and is to contain the Goods purchased, the Quantity, and the Price.

Bills of this Nature should be written distinctly, and in the most mercantile and approved Form, and ought to contain the Place where, and Time when the Goods were sold; the Buyer and Seller's Names, the Terms of Payment, if sold on Time, the Weight or Measure of the Goods, the Marks and Numbers of each Piece, Hoghead, Barrel, Butt, &c. the Price they are sold at, the total Sum they come to.——Examples as follows :

A Linen-Draper's Bill.

London, March 3, 1787.

Mrs. CAREFUL,

Bought of JAMES LINDSEY,

5 Yards of Check, at 1s. 4d. per Yard
 7 Yards Long Lawn at 4s. 3d.
 9 Yards of Callico Wrapper, at 1s. 2d.
 6 Yards of Diaper, at 1s. 3s.
 3 Yards of Cambric, at 7s. 9d.
 10 Yards of Dowlas, at 1s. 5d.

£ 4 11 10

A Grocers

A Grocer's Bill.

London, March 23, 1787.

Mrs. SWEETLOVE,

Bought of JEREMIAH ALLSPICE,

- 8 Pounds of fine Bloom Tea, at 7s. }
 4d. per lb. }
 9 Pounds of good Green, at 5s. 4d.
 6 Pounds of Hyson, at 6s. 2d.
 7 Ounces of Cinnamon, at 10d. $\frac{3}{4}$ per }
 Ounce, }
 Four Loaves of Sugar, Weight 29 }
 Pounds, at 8d. $\frac{1}{4}$ per Pound }
 12 Pounds of Currants, at 7d. $\frac{3}{4}$ per lb.
 7 Ounces of Ginger, at 1d. $\frac{1}{4}$ per oz.

 8 18 4 $\frac{1}{4}$

A Haberdasher's Bill.

London, February 28, 1787.

Miss SARAH NIMBLE,

Bought of WILLIAM ENDING,

- Five fine Chip Hats, at 2s. 1d. $\frac{3}{4}$ each
 16 Yards and $\frac{1}{2}$ of Ribbon, at 5d. $\frac{3}{4}$ per }
 Yard }
 18 Yards and $\frac{1}{2}$ of Lace, at 4s. 4d.
 1 Oz. and $\frac{3}{4}$ of Thread, at 10d. per Oz.
 A black silk Cardinal, full trimmed }
 with Lace, } 2 15 4
 A Piece of Mecklin Lace, 21 Yards $\frac{3}{4}$ }
 at 17s. 6d. per Yard }
 23 Yards of broad black Lace, at 2s. 9d. }
 per Yard }

 £ 29 19 5 $\frac{1}{2}$

A Woollen-Draper's Bill.

London, May 10, 1787.

Mr. JACOB BUCKRAM,

Bought of DAVID DRUGGET,

20 Yards of silk Stuffs, at 3s. 6d. per Yard
 40 Yards of Drugget, at 2s. 3d. ditto
 18 Yards of Fustian, at 10d. $\frac{1}{2}$
 14 Yards of Frize, at 1s. 7d.
 15 Yards of Broad Cloth, at 9s. 6d.
 30 Ells of Kerseys, at 2s. 5d. per Ell
 29 Yards $\frac{1}{2}$ of superfine Drab, at 19s. }
 4d. per Yard }

£49 3 3

A Cheesemonger's Bill.

London, May 15, 1787:

Mr. CHARLES CHANDLER,

Bought of TITUS GREASYFINGER,

A Flitch of Bacon, weighing 72 Pounds, }
 at 6d. $\frac{1}{4}$ per lb. }
 A Cheshire Cheese, Weight 69 ditto, }
 at 5d. $\frac{1}{4}$ }
 Three Gloucester Cheeses, Weight 37 }
 and $\frac{1}{2}$ ditto, at 4d. $\frac{3}{4}$ }
 18 Cream Cheeses, at 10d. $\frac{3}{4}$ each
 A Firkin of Butter, Weight 56 Pounds, }
 and $\frac{1}{2}$ at 8d. $\frac{1}{4}$ per lb. }
 6 Stilton Cheeses, Weight 137 and $\frac{1}{2}$ }
 ditto, at 4d. $\frac{3}{4}$ }
 6 Pounds of best Lapping Butter, at 1s. }
 2d. per lb. }

£9 8 10 $\frac{3}{4}$

A Corn-

A Corn-Chandler's Bill.

London, May 30, 1787.

Mr. EUCLID BEACH,

Bought of WALTER BROOKS,

Oats 5 Quarters, at 2s. 6d. per Bushel
 Beans 9 Bushels, at 1s. 3d. per Quart.
 Hops 117 Pounds, at 1s. 4d. per lb.
 5 Load of Hay, at 2l. 2s. per Load
 Pale Malt, 28 Bushels, at 3s. 2d. per Bush.
 Tares 19 Bushels, at 1s. 11d. per Bush.
 Pease 23 Bushels, at 3s. 11d. $\frac{1}{2}$ per Bush.

34 12 6 $\frac{1}{2}$

A Mercer's Bill.

London, June 12, 1787.

Mr. HENRY DUNDAS,

Bought of ROBERT SAYER, and Son,

13 Yards of Grogram, at 3s. 6d. per Yard
 29 Yards and $\frac{1}{2}$ of Forest Cloth, at 6s.
 59 Yards and $\frac{1}{4}$ of Serge du Soy, at 5s. 6d.
 79 Yards and $\frac{3}{4}$ of German Serge, at }
 4s. 6d. per Yard
 27 Yards and $\frac{1}{2}$ of Fustians, at 3s. 3d.
 49 Yards and $\frac{7}{8}$ of Superfine Cloth, at }
 17s. 2d.
 29 Yards of Shaloon, at 1s. 1d. $\frac{1}{2}$

£94 5 2 $\frac{1}{4}$

An

An Oil-Man's Bill.

London, June 21, 1787.

Mr. BENJAMIN GLOSSY,

Bought of TITUS BROWMROD,

$\frac{1}{4}$ of Cwt. of Mustard, at 7l. 17s. per cwt.

$\frac{3}{4}$ of Cwt. of Poland Starch, at 2l. 12s. 6d.

5 Jars of Anchovies, at 2s. 3d. each

7 Pounds of Capers, at 1s. 2d. $\frac{1}{2}$ per lb.

3 Gallons of Chamber Oil, at 3s. 4d. }
per Gallon }

One Quart of Sallad Oil, at 8s. 6d. per Gal.

3 Pounds and $\frac{1}{2}$ of best Stone Blue, at }
1s. 6d. per lb. }

£6 2 3 $\frac{1}{4}$

A Silk Mercer's Bill.

London, June 1, 1787.

Mr. THOMAS PROBIN,

Bought of JOHN PROBERT,

29 Yards and $\frac{1}{2}$ of Brocade Sattin, at }
17s. 9d. }

57 Yards of Mohair, at 10s. 8d.

54 Yards and $\frac{3}{4}$ of green Silk Damask, }
at 14s. 8d. $\frac{1}{2}$ }

37 Yards of Padusway, at 11s. 10d.

24 Yards of Taffaty, at 3s. 9d.

12 Yards and $\frac{1}{8}$ of Ducape, at 6s. 9d.

42 Yards and $\frac{3}{8}$ of Poplin, at 3s.

£133 13 7 $\frac{1}{4}$

Leather

A Leather Seller's Bill.

London, May 3, 1787.

Mr. BLOOMSKIN,

Bought of ADAM BUCKHIDE,

Large oiled Lamb Skins, 215, at 1s. }
3d. $\frac{1}{2}$ each

Goat Skins, 130, at 11d. $\frac{1}{4}$

Allomed Sheep Skins, 137, at 1s. 3d.

Calve Skins, 19, at 4s. 3d.

Oiled Buck, 15, at 12s. 9d.

Ruffia Hides, 82, at 12s. 9d.

5 Doz. white Sheep Skins, at 12s. per Doz.

£98 16 8 $\frac{1}{2}$

From the following Orders form them into Bills of
Parcels, and find the Amount of the Goods.

Suppose Mr. James Henderson, of Coventry, sends
an Order to Mr. Johnson, in London, for the follow-
ing Goods, dated June 2, 1787.

S I R,

THIS is to desire you will send me, by John Thom-
kins, the Carrier, 37 Yards $\frac{7}{8}$ of Irish, at 1s. 2d. $\frac{1}{2}$ per
Yard; 18 Yards $\frac{3}{4}$ of Diaper, at 11d. $\frac{3}{4}$ per Yard;
17 Yards $\frac{3}{8}$ of Yard-wide Irish, at 20d. per Yard;
7 Yards $\frac{3}{4}$ of dark Chints, at 3s. 8d. per Yard; 9 $\frac{7}{8}$
Yards of clear Lawn, at 4s. 8d. per Yard. The Ba-
lance of your former Account, when you please to
draw, shall be duly honoured.

By S I R,

Your humble Servant,

JAMES HENDERSON.

Ans. 8l. 12s. 6d. $\frac{3}{4}$.

Suppose

Suppose an order has been received from Thomas Croker, of Chester, by Messrs. Railman and Co. in London, for the following Goods, make the Bill of Parcels, dated May 27, 1787.

S I R,

THE last Goods you sent were fully satisfactory, and pray you to send me the following Goods, agreeable to the Price, viz. 7 Cwt. of Turpentine Oil, at 70s. per Cwt. 8 Cwt. of strained Turpentine, at 24s. per Cwt. 9 Cwt. of Burgundy Pitch, at 16s. per Cwt. 5 Pounds of Vermillion, at 10s. per lb. 9 Doz. of Hair Brooms, at 7s. per Doz. and 7 Doz. of House Brooms, at 20s. per Doz. Send a Bill of Parcels with the above, and draw on me, at one Month after Date, which shall be duly honoured, by

S I R,

Your Humble Servant,
THOMAS CROKER.

Anf. 53l. 19s.

Troy Weight.

This is the original Standard of all other Weights; the smallest Weight used in England was a Grain of Wheat, taken out of the Middle of the Ear, and well dried; 32 of which make one Penny-weight, or the 20th Part of an Ounce: but the 32 Natural hath been since changed for 24 artificial Grains: the Divisions of this Weight are as follow:

			Mark
32 Grains of Wheat	} make	24 Artificial Grains.	grs.
24 Grains		1 Penny-weight.	dwt
20 Penny-weights		1 Ounce.	oz.
12 Ounces		1 Pound.	lb.
25 Pounds		1 Qur. Hun. Weight.	qur.
100 Pounds		1 Hundred Weight.	cwt.
20 Hund. Weight		1 Ton.	ton.
			Gold

Gold, Silver, Pearls, Diamonds, Jewels, in general are weighed by this Weight. One Pint of Water is estimated to be equal to a Pound Troy. A Carrat is supposed to be the 24th Part of any Quantity. The Standard for the Gold Currency is 22 Carrats of fine Gold, and 2 Carrats of Copper or Alloy melted together.

Apothecaries Weight.

The Pound Troy is the greatest Apothecaries Integer: their Pound and Ounce is the same, only differently divided and subdivided, and is as follows.

			Mark
20 Grains	} make	1 Scruple.	℞
3 Scruples		1 Dram.	ʒ
8 Drams		1 Ounce.	℥
12 Ounces		1 Pound.	℔

Note. By this Weight Apothecaries compound their medicinal Preparations, but buy and sell their Drugs by Avoirdupoise Weight.

Avoirdupoise Weight

Is the Weight now most in Use, it was introduced by Chance, and so continued by Custom: by it, is weighed every Thing which falls not under the two former, such as all Kinds of Grocery, or Goods subject to any Kind of Waste, Dust, Dross, &c. as Sugars, Tobacco, Rice, Indigo, Cochineal, Drugs, Spices, Bread, Beef, Allum, Tin, Lead, Iron, Steel, Brass, Copper

Copper, Salt, Soap, Tallow, Pitch, Tar, Rosin, Wax, Hemp, Flax, &c. the common Standard is the Ton, which is divided and subdivided as follows :

			Mark
16 Drams	-	1 Ounce	oz.
16 Ounces	- -	1 Pound.	lb.
28 Pounds	- -	1 Quarter.	qur.
4 Quarters or 112 lb.		1 Hundred Weight.	cwt.
20 Hundred Weight		1 Ton.	ton.

Note. One Pound Avoirdupoise Weight is 14 oz. 11 dwt. 15 grs. $\frac{1}{2}$ Troy.

Variety of Articles, whose different Weights are necessary to be observed are as follows :

OF B R E A D.

A Peck Loaf weighs 17lb. 6 oz. 1 dram

$\frac{1}{2}$ Peck Loaf weighs 8 lb. 11 oz. $\frac{1}{2}$ dram.

$\frac{1}{3}$ Ditto 4lb. 5 oz. 8 dwts. $\frac{1}{2}$.

OF W O O L.

7 Pounds	- - -	1 Clove
14 ditto	- - -	1 Stone
28 ditto, or 2 Stone	- - -	1 Tod
13 Stone, or 6 Tods	1 Stone	1 Wey
2 Weys, or 364 lb.	- -	1 Sack &
12 Sacks, or 4365 lb.	- -	1 Last
240 lb.	- - -	1 Pack

In some Places Wool is weighed by the Weight of 30 lb.

For

For CHEESE and BUTTER.

8 lb.	-	-	1 Clove or $\frac{1}{2}$ Stone
32 Cloves	or	256 lb.	1 Wey in <i>Essex</i>
42 Cloves,	or	336 lb.	1 ditto in <i>Suffolk</i>
56 lb.	-	.	1 Firkin
224 lb.	-	-	1 Barrel

For C O R N.

A Bushel of Wheat of Winchester Measure,	}	58 lb.
weighed at the King's Mill		
Ditto of Barley, at <i>Portsmouth</i> ,		47 lb.
Ditto of Wheat of 9 Gallons per Bushel,	}	67 lb.
Country Measure,		
Barley,		54 lb.

N. B. Sometimes the Bushel exceeds this, and sometimes less, according to the Goodness of the Grain.

For S A L T.

A Gallon of Salt is	7lb.
A Bushel	56lb.
A Ton 42 Bushels, or	2352lb.
20 Cwt.	1 Ton.

For H A Y.

A Load in some Places is 25 Cwt. in others	30 Cwt.
A Truss of new Hay is	60lb.
Ditto of old Hay	56lb.
A Load of Hay	36 Trusses.
A Truss of Straw	36lb.

Sundry ARTICLES.

1 Stone of Meat,	is	8lb.
1 Stone of Horseman's Weight		14lb.
1 Stone of Glass	- -	5lb.
1 Stone of Hemp	- -	32lb.
Firkin of Soap	- -	64lb.
Barrel of Anchovies	- -	30lb.
Ditto Candles	- -	120lb.
Ditto Soap	- -	256lb.
Ditto Oatmeal	- -	200lb.
Ditto Raisins	- -	112lb.
Ditto Figs	280lb. to 2 cwt. 2 qurs.	
Ditto Spanish Tobacco,	from 224lb. to 336lb.	
Ditto Gunpowder	- -	112lb.
A Last of Gunpowder	24 Barrels.	
Puncheon of Prunes	- -	1120lb.
Fother of Lead,	19 cwt. $\frac{1}{2}$, or	2184lb.
Seam of Glass is	24 Stone, or	120lb.
A Burden of Gad Steel		180lb.
Faggot of Steel	- -	120lb.
Tub of Tea	- -	60lb.
Quintal of New-Foundland Fish		100lb.

Of Parchment and Paper.

12 Skins	1 Dozen.
5 Dozen	1 Roll of Parchment.
24 Sheets	1 Quire.
20 Quires	1 Ream.
10 Reams	1 Bale.

Of Things bought and sold by the Dozen, Score, or Gross.

A Dozen is 12.

A Score is 20.

A common Hundred, 100.

A long Hundred, 120.

A Gross is 12 Dozen, or 144.

A great Gross is 144 Dozen.

Lemons

Lemons, Oranges, Bungs, Corks, &c. are sold by the Dozen or Gross. Herrings and several other Sort of Fish, and all Sorts of Nails, and many such small Things, have six Score, or 120 to the Hundred; but a Hundred of Ling Cod is 124 in Number, and a Hundred of Books in Printing is 104.

Cloth Measure.

2 Inches and $\frac{1}{4}$	1 Nail.
4 Nails	1 Quarter of a Yard.
4 Quarters	1 Yard.
3 Quarters	1 Ell Flemish.
5 Quarters	1 Ell English.
6 Quarters	1 Ell French.

Note, Linen, Woollen, Silks, Cords, Tape, &c. are measured by the Yard: Dutch Hollands are bought by the Ell Flemish, and sold by the Ell English: Tapestry, &c. are sold by the Ell Flemish.

Long Measure.

This Measure is used to find the Distance of one Place from another, consequently includes all Things that have Length without Breadth; the Subdivisions which are as follows, viz.

3 Barley Corns	1 Inch.
4 Inches	1 Hand.
12 Inches or 3 Hands	1 Foot.
18 Inches - -	1 Common Cubit.
3 Feet, or 36 Inches	1 Yard.
3 Feet 9 Inches -	1 Ell English.
6 Feet - -	1 Fathom.
5 Feet - -	1 Geometrical Pace
5 $\frac{1}{2}$ Yards, or 16 Feet $\frac{1}{2}$	1 Rod, Pole, or Perch.
40 Rods, or 220 Yards	1 Furlong.
8 Furlongs, or 1760 Yards	1 Mile.
3 Miles - -	1 League.
20 Leagues, or 60 geographical or nautical Miles, or about 69 $\frac{1}{2}$ English Statute Miles, each Mile 5280 Feet, - -	1 Degree of the Meridian of any great Circle.

360 Degrees the Circumference of the Earth and Sea.

Long Measure is that from which all other Measures are deduced : the Length of three Grains taken out of the Middle of the Ear and well dried, is supposed to make one Inch.

It is necessary to observe, that from the above is deduced the following Table of

Square

Square and Land Measure.

144 Square Inches	1 Square Foot.
9 Square Feet	1 Square Yard.
100 Feet	1 Square of Flooring
$30\frac{1}{4}$ Square Yards, or 272 Feet and $\frac{1}{4}$	1 Square Rod, Pole or Perch.
40 Rods in Length, and 1 in breadth, that is 10 Chains in length and 1 in breadth	A Statute Acre.
4 Roods, or 160 Rods, or 4840 Yards	1 Acre of Land.
30 Acres	1 Yard of Land.
640 Acres	1 Square Mile.
100 Acres	1 Hide of Land.

Note, That though a statute Pole, Rod or Perch is 5 Yards and $\frac{1}{2}$, or 16 Feet and $\frac{1}{2}$, yet in fenny and barren Lands they generally allow 18 Feet, and 21 Feet to the Pole in the Forest Mensuration. Land is usually measured by a Chain of 4 Poles or 22 Yards in Length, which is divided into 100 equal Parts or Links, each Link being 7 Inches and, 2. 76 Barley Corns; therefore a Piece of Ground that is a Chain in Length, and the same in Breadth, contains 16 square Poles. Now in one Acre there are (as has been observed) 160 square Rods; for 10 Chains, or 40 Poles in length, and 1 Chain or 4 Poles in breadth make 1 Acre, being 160 Poles, or 100,000 Links. Thus 10 Chains, the Length, multiplied by 100, the Links in one Chain, are equal to 1000, which multiplied by 100 Links, the Breadth, are equal to 100,000 as above.

This latter Measure relates to all Things having Length and Breadth, such as Painting, Plastering, Plumbing, Glazing, Thatching, Flooring and Tiling.

From

From Long Measure is also deduced Solid Measure, and is thus subdivided.

1728 Inches	-	-	1 Solid Foot.
27 Solid or Cubic Feet		}	1 Cubic Yard or Load of Earth.
40 Feet of round or 50 Feet of square Timber		}	1 Ton or Load.
108 Solid Feet	-	-	1 Stack of Wood.
128 ditto, viz. 8 Feet long, 4 Feet deep and 4 Feet broad		}	1 Cord of Wood.

Dry Measure.

All Goods of a dry Nature are measured by this ; such as Wheat, Barley, Oats, Pease, and all Sorts of Grain ; Lead-Ore, Sea-coal, Charcoal, Small-coal, Fruit, Lime, Oyfters, Cockles, Muscles and Salt.

This Measure is divided into two Denominations, namely, Land and Water Measure ; and First,

D R Y M E A S U R E .

1 Pound Troy	-	1 Pint
2 Pints	-	1 Quart.
2 Quarts	-	1 Pottle.
2 Pottles	-	1 Gallon.
2 Gallons heaped	-	1 Peck.
4 Pecks	-	1 Bushel.
5 Bushels	-	1 Market Load.
4 Bushels	-	1 Coom or Sack of Corn.
2 Cooms or 8 Bushels	-	1 Quarter.
5 Quarters	-	1 Cart Load.
2 Loads, or 10 Quarters	-	1 Wey.
12 Weys, or 120 ditto	-	1 Last.
5 Bushels	-	1 Sack of Flour.

What

Water Measure.

By this is Measured Coals, Lime, Sand, Fruit, Oysters, Muscles, Cockles and Salt; also Pease and Beans green in the Pod.

5 Pecks or 10 Gallons	1 Bushel.
3 Bushels of Coals	1 Sack.
3 Sacks or 9 Bushels	1 Vat or $\frac{1}{4}$ of Chaldron.
4 Quarters or Vats, 12 Sacks or 36 Bushels	} 1 Chaldron.
21 Chaldron	
-	1 Score.

That is, all Purchasers of a Score of Coals have 21 Chaldrons.

Note, 33 Cubic Inches and three Fifths make a Corn Pint; 268 Inches and four Fifths a Corn Gallon, and 2150 Inches two Fifths a true Winchester Bushel, according to the Act of Parliament made 1697, which says, that every round Bushel, with an even Bottom, that is, 18 Inches wide, and 8 Inches deep, shall be deemed a true legal Winchester Bushel.

Of Liquid Measure.

This Measure was originally taken from Troy Weight: 1lb. of Wheat Troy (as observed under the Table for that Weight) makes one Pint; consequently 8lb. of Wheat makes 1 Gallon of Wine Measure: The Wine Gallon now contains 231 cubical Inches, though formerly but 224, as appeared by an Experiment made at Guildhall, in 1688, and answers exactly to Troy Weight, as the Beer Gallon which comprehends 282 Cubic Inches answers exactly to Avoirdupoise Weight.

H

Of

Of Wine Measure.

28 $\frac{7}{8}$ Cubic Inches	1 Pint.
2 Pints	1 Quart.
4 Quarts	1 Gallon.
10 Gallons	1 Anker of Brandy.
18 Gallons	1 Runlet.
42 Gallons	1 Tierce.
31 $\frac{1}{2}$ Gallons	1 Half Hoghead or Barrel.
63 Gallons	1 Hoghead.
84 Gallons	1 Puncheon.
2 Hogheads	1 Pipe.
2 Pipes	1 Tun.

A Puncheon contains an uncertain Quantity from 84 to 126 Gallons.

Cyder, Perry, Oil, Vinegar, and strong Liquors, are bought and sold by this Measure; as also Milk in the City of London, there being no Standard to the Contrary.

Beer and Ale; or Winchester Measure.

35 Cubic Inches and $\frac{1}{4}$	1 Pint.
2 Pints	1 Quart.
4 Quarts	1 Gallon.
4 Gallons and $\frac{1}{2}$	1 Pin.
8 Gallons	1 Firkin of Ale.
32 Gallons	1 Barrel.
48 Gallons, or 1 $\frac{1}{2}$ Barrel	1 Hoghead.
9 Gallons	1 Firkin of Beer.
36 Gallons	1 Barrel.
54 Gallons	1 Hoghead.
2 Kilderkins	1 Barrel
2 Hogheads, or 3 Barrels, or } 108 Gallons	1 Butt.
2 Butts	1 Tun.

It

It may be observed from the above Table, that a Barrel of Beer in London, is 36, and a Barrel of Ale is 32 Gallons; but 8 and $\frac{1}{2}$ Gallons make a Firkin of Beer, or Ale, strong or small, in all Parts of England, except London; consequently, the Barrel must be 34 Gallons without Distinction.

A Barrel of Salmon or Eels	54 Gallons.
A Keg of Sturgeon	4 or 5 Gallons.
A Barrel of Herrings	4 Firkins, or 32 Gallons.

T I M E.

Time, of itself, is nothing, but, from Thought
 Receives its Rise, from labouring Fancy wrought;
 From Things considered, whilst we think on some
 As present, some as past, or yet to come:
 No Thought can think on Time, that's still confess'd,
 But thinks on Things in Motion, or at rest.

That is, Time only shews the Duration or Mutation of Things. The Standard, or Integer, by which such Continuance of Change is computed, is one Year, which is the Space of Time in which the Sun apparently performs its Revolution through the Ecliptic, which, according, to modern Observation, is 365 Days, 5 Hours, 48 Minutes, 57 Seconds, &c.

The

The Subdivisions of TIME are as follow :

60 Thirds	1 Second.
60 Seconds	1 Minute.
60 Minutes	1 Hour.
24 Hours	1 Day.
7 Days	1 Week.
4 Weeks	1 Month.
13 Months, 1 Day and 6 Hours	1 Solar Year.

The Year is also divided into 12 unequal Months, called Calendar Months, which are, *January, February, March, April, May, June, July, August, September, October, November, and December.*

And to know the Days in each Month, observe,

Thirty Days hath *September,*
April, June, and November ;
February hath Twenty-Eight alone,
 And all the Rest hath Thirty-One ;
 Except Leap Year, and then's the Time
February's Days are Twenty-Nine.

F I N I S.

